

ABSTRACT

Approved for entry

TTB

10/10/05

A method is provided for close control and adjustment of in-cylinder oxygen concentration levels together with boost adjustments to minimize harmful emissions during transients in engines which utilize late direct cylinder injection of fuel. EGR flow rates are adjusted in a closed loop, linked fashion together with boost pressure changes during transients, to maintain intake charge-air oxygen concentration and boost levels within critical ranges for controlled temperature, low emission combustion. Changes in fuel feed into the cylinder are made to wait for or follow changes in the boost level of charge-air into the cylinder for combustion. Temporary fuel levels are not allowed to exceed desired fuel/oxygen ratios during transients, by controlling fuel feed responsive to the level of boost of charge-air being taken into the cylinder for combustion.